MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 3, 2016/2017

BMG3014 – MANAGEMENT OF TECHNOLOGY

(All Sections)

1 JUNE 2017
2.30 p.m. – 4.30 p.m.
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This question paper consists of **TWELVE (12)** printed pages with **TWO (2)** sections.
2. Answer **ALL** sections.
3. Marks are shown at the end of each question.

SECTION A: MULTIPLE CHOICE QUESTIONS (50 MARKS)

1. The goal of management of technology and innovation in an organization should always be to:
   A. Create new technology that is groundbreaking
   B. Expand the number of employees in R&D
   C. Create value for the firm
   D. Be efficient

2. Solow Residual showed that the residual growth in GDP is due to _____; where technological innovation increased the amount of output achievable from a given quantity of labour and capital.
   A. technological change
   B. scientific discovery
   C. creativity
   D. increase in labour and capital

3. Which of the following are the key components of management of technology?
   A. Managing Technology; HRM; Marketing; Budgeting
   B. Technology; Innovation; R&D; Transfering; Forecasting; Strategic Management
   C. Managing Innovation; Technology Forecasting; Technology Transfer
   D. Product Development; Product Launch; Promotion; Pricing; Place

4. Experts agree that management of technology involves which area(s) of the organization?
   A. R&D only
   B. Strategic Management, R&D and Marketing
   C. Engineering, Production and Operations, and Finance
   D. All areas

5. Professor Ken Green (1998) defined technology as being the combination of knowledge, _____ and _____ .
   A. Innovation and Manpower
   B. Creativity and Application
   C. Product Development and Process Design
   D. Skills and Artefacts

6. _____ is the defining feature of the second generation of R&D management (1975-1990).
   A. Networking
   B. Centralization
   C. Decentralization
   D. Database

Continued...

7. Appropriation of Rents models how organisations can capture value from purchased technology when _____.
   A. the technology is licensed to others
   B. it is not accessible to the competitors
   C. it is available to anyone, including competitors
   D. the technology is maturing

8. Which of the following is NOT true?
   A. Technologies are not confined to a specific application, business or industry.
   B. While development generally occurs within narrow specialty areas, the advantages produced can only be gained by linking technologies together into larger systems.
   C. Accounting, marketing, and financial techniques are not technologies.
   D. Technologies include individual know-how, craftmanship or artistic skills, and knowledge that do not lead directly to industrial applications.

9. Realising that most firms and competitors within their industry have required the same level of competence in other areas of management, such as operations, human resources, marketing, strategy, and the like, many firms have begun to look to innovation as _____.
   A. a major marketing strategy option
   B. a key differentiating factor for competitive advantage
   C. another area of management
   D. no longer able to be a source for success

10. The following are the categories often used in technology audit, EXCEPT;
    A. Base
    B. Key
    C. Outsource
    D. Pacing

11. According to Schumpeter's _____ model, more R&D in equals to more innovation out.
    A. Technology-Push
    B. Demand-Pull
    C. Coupling
    D. Integrated

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12. Organisational creativity is a function of:
    A. Intellectual abilities, knowledge, style of thinking
    B. Style of thinking, personality, motivation
    C. Personality, motivation, environment
    D. Social processes and contextual factors

13. _____ is when one is able to define (or redefine) an activity in an imaginative, non-serious or metaphoric manner so as to enhance intrinsic enjoyment, involvement, and satisfaction from doing the activity.
    A. Risk taking and age
    B. Adult playfulness
    C. Resistance to change
    D. Mobility

14. When deciding to make changes in your manpower, some data even show that the more radical the new technology, the more important _____ is to the innovation process.
    A. interfirm mobility
    B. R&D
    C. intermediate technology
    D. market research

15. Phases in managing innovation include scanning, strategy, _____, implementation, learning and re-innovation.
    A. Concept definition
    B. Development
    C. Resourcing
    D. Vision

16. Which of the following are the main benefits of innovation to businesses?
    i. Greater control of the process and the outcomes
    ii. Greater understanding of the technology produced and how to apply it
    iii. Greater ability to potentially develop the next generation of technology
    iv. Greater profit potential as a late majority
    A. i and ii
    B. i, ii and iii
    C. iii and iv
    D. All of the above

Continued...

17. Which of the following is TRUE?
    A. Innovation is no longer the key differentiator for businesses
    B. Technological Scanning is broad scanning of potential sources of knowledge, many of which are far removed from the firm's immediate businesses
    C. The three phased Technology S Curve is a useful tool to help manager foresight their pipeline of innovations
    D. Schmookler's Technology Push Model is a recent addition to the set of frameworks managers use to manage technology

18. Different sources of information are more useful at different stages of the acquiring company's technology cycle; competitive intelligence methods and private newsletters are useful for which stage?
    A. Technology development stage
    B. Product development stage
    C. Process development stage
    D. Procurement stage

19. _____ is a way of developing internal technological capabilities based on specific organisational mechanisms. This process consists of setting up separate units within the existing corporate entity.
    A. Internal development
    B. Internal venturing
    C. Alliance
    D. Private label

20. _____ is acquisition through grants and scholarships; firms are able to stay familiar with new technologies, without necessarily intending to use such technologies in the immediate future.
    A. Internal development
    B. Intrapreneurship
    C. Alliance
    D. Educational acquisitions

21. A firm may opt against collaboration and engage in a development project on their own due to;
    A. They possess all the needed capabilities and resources for the particular project
    B. Want to have some control over the project's development and returns
    C. Want to destroy obsolete capabilities
    D. None of the above

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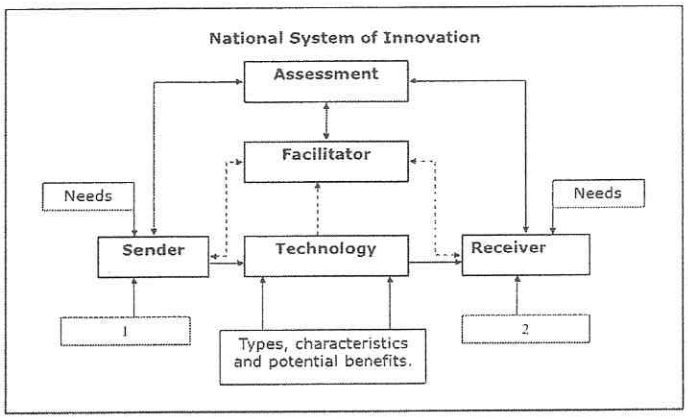
22. Hayami and Ruttan (1985) defined technology transfer into;
    A. Material transfer, Design transfer and Capacity transfer
    B. Hardware transfer, information transfer and knowledge transfer
    C. Market transfer, Production transfer and R&D transfer
    D. Activity transfer and Information transfer

23. Complete the following diagram;



    1 and 2 are:
    A. Material and Capacity
    B. Willingness and Readiness
    C. Production and R&D
    D. Activity and Information

24. The firm wants to enter markets which it cannot directly penetrate because of trade barriers, local content, etc. The appropriate strategic option in this situation is _____.
    A. External exploitation
    B. Internal exploitation
    C. Private label
    D. Decentralization

25. _____ refers to an expanding set of endpoints people use to access applications and information or interact with people, social communities, governments and businesses. It includes mobile devices, wearable, consumer and home electronic devices, automotive devices and environmental devices — such as sensors in the Internet of Things (IoT).
    A. Web-scale IT
    B. Smart Machines
    C. Device Mesh
    D. Digital Mesh

Continued...

26. According to the report from Gartner _____ fall into three categories: robots, drones and autonomous vehicles.
    A. Web-scale IT
    B. Internet of Things (IoT)
    C. Intelligent things
    D. Digital Mesh

27. According to Gartner's Hype Cycle _____ is when early publicity produces a number of success stories — often accompanied by scores of failures. Some companies take action while many do not.
    A. Trough of Disillusionment
    B. Peak of Inflated Expectations
    C. Slope of Enlightenment
    D. Plateau of Productivity

28. According to Gartner's Hype Cycle _____ is when more instances of how the technology can benefit the enterprise start to crystallize and become more widely understood. Second- and third-generation products appear from technology providers. More enterprises fund pilots while conservative companies remain cautious.
    A. Trough of Disillusionment
    B. Peak of Inflated Expectations
    C. Slope of Enlightenment
    D. Plateau of Productivity

29. The _____ type of tools for technology forecasting includes focus group, morphological analysis, and interviews. These tools ask the user to place themselves in the future and set goals, to plan backward to meet future goals.
    A. Surveillance
    B. Projective
    C. Normative
    D. Integrative

30. The _____ type of tools for technology forecasting is really a combination of the other four tools. It attempts to collapse all the information into a coherent planning process.
    A. Surveillance
    B. Projective
    C. Normative
    D. Integrative

Continued...

31. The _____ ensures anonymity for the participants and people are less inhibited with their ideas or opinions in the situation. There are no competition, status pressures and conformity issues that usually get in the way in meetings. Higher degree of individual participation. Individual opinions get more attention and each participant has greater opportunity to assure that their ideas are part of the group's frame of reference. The opinions are from experts, whom have in depth knowledge. Ensures the participants remain focused on the problem.
    A. Expert opinion
    B. Nominal Group Technique
    C. Delphi Method
    D. Scenarios Writing

32. Your team is currently in the last day of your strategic retreat and concluding the 4th step of the Nominal Group Technique exercise. Izyan, May, Sivam and Raymond had identified System Xion, System YES and System Zeva respectively as their top 3 picks. Joseph and Jaslenee proposed System P23, System Xion and System Q. Siti, Bakar, Bob, Suzi and Juwita all agreed on System YES, System TE and System Xion. Bikesh, Arthur and you proposed System NextX, System Xion and System YES. What is the likely conclusion of your NGT exercise i.e.: the top five (5) priority list?
    A. Xion, P23, Q, TE, NextX
    B. Xion, YES, TE, Zeva, NextX
    C. P23, NextX, Xion, TE, Zeva
    D. YES, Xion, TE, Zeva, NextX

33. Planning for the introduction of a new technology includes consideration of both internally and externally oriented management issues. Which of the following are externally oriented issues?
    A. Interface with the market, including the integration aspects.
    B. Customer-supplier and producer-user relationships.
    C. Accountability to shareholders in terms of new technology investment and benchmarking of performance.
    D. All of the above

34. Bartlett and Ghoshal encourage the transnational approach where _____.
    A. decentralized R&D labs is used but each plays a different role in firm's strategy and are coordinated centrally
    B. each division does own R&D for local market
    C. resources and skills anywhere in firm can be leveraged to exploit opportunities in any geographic market
    D. each division does own R&D, but firm attempts to leverage most creative ideas across company

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35. _____ is a test phase that aims to establish whether a project is conceptually and financially sound and that sufficient demand for the product or service exists, prior to becoming a full scale operation. It helps to demonstrate the technical feasibility of the technology to top management and serve as a credible demonstration model for other units in the organisation.
    A. Prototype
    B. Beta version
    C. Pilot
    D. Experiment

36. _____ is a function of technological complexity, the capabilities of the firm, and the ability of the firm to learn from its activities that can be maintained over time because it is difficult for competitors to imitate or overcome.
    A. Dominant design
    B. Sustainable competitive advantage
    C. Core competency
    D. Managing innovation

37. Using _____ to analyze business issues is merely one form of decision making, similar to profit maximization, legal compliance, or religious beliefs. The difference, however, between _____ and these other bases for decisions is that _____ can serve as the foundation for each of the other methods.
    A. innovation
    B. corporate social responsibility
    C. sustainability
    D. ethics

38. Following are examples of inclusive innovation, EXCEPT;
    A. Jaipur Foot
    B. Chotukool
    C. Google Glass
    D. Tata Nano

39. _____ means consistency in values, would require that the decision-maker to define his or her values, as well as create a prioritization of those values.
    A. Sustainable innovation
    B. Corporate Social Responsibility
    C. Inclusive Innovation
    D. Integrity

Continued...

40. _____ is about better prices, decent working conditions, local sustainability, and fair terms for farmers and workers in the developing world.
    A. Sustainable Innovation
    B. Corporate Social Responsibility
    C. Inclusive Innovation
    D. Fairtrade

41. Likelihood of innovation activities being geographically clustered depends on the following; EXCEPT
    A. The nature of the technology
    B. The organization exploits continuous technology
    C. Industry characteristics
    D. The cultural context of the technology

42. Which of the following is a major feature of technology clusters such as the Silicon Valley often characterized by the spreading of research output of one entity to others?
    A. Innovation Web
    B. Continuous Technology
    C. Technology Spillover
    D. Agglomeration Economies

43. Innovation diffusion rates can be represented graphically by
    A. S Curve
    B. Bell Curve
    C. Bathtub Curve
    D. Linear Graph

44. The trend towards increased in strategic partnerships is due to the emergence of one of the following factors;
    A. The science content within technologies has increased and organisations do not have in-house expertise covering the whole scientific spectrum
    B. The costs of R&D have decreased significantly and it is feasible for a firm to bear on its own
    C. The competitiveness among firms is less intense, thus the pressure has shifted from R&D to innovate more quickly
    D. Technology advancements such as big data and analytics allow firms to innovate to continue being competitive

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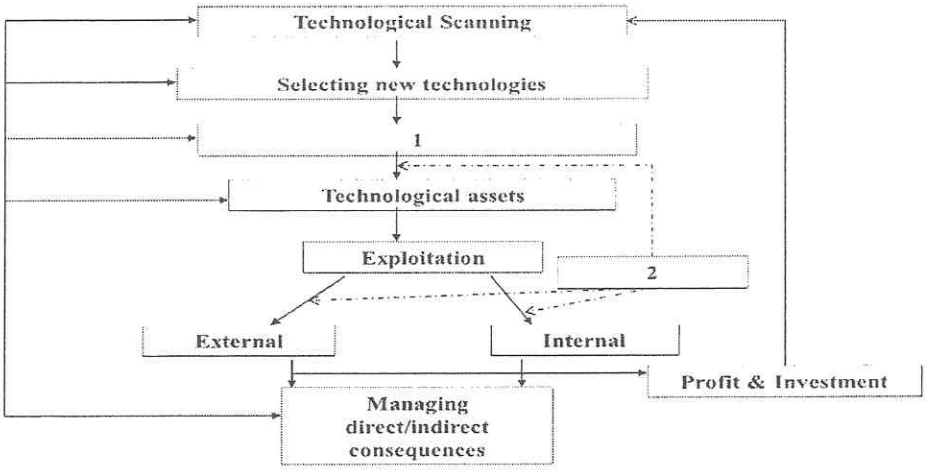
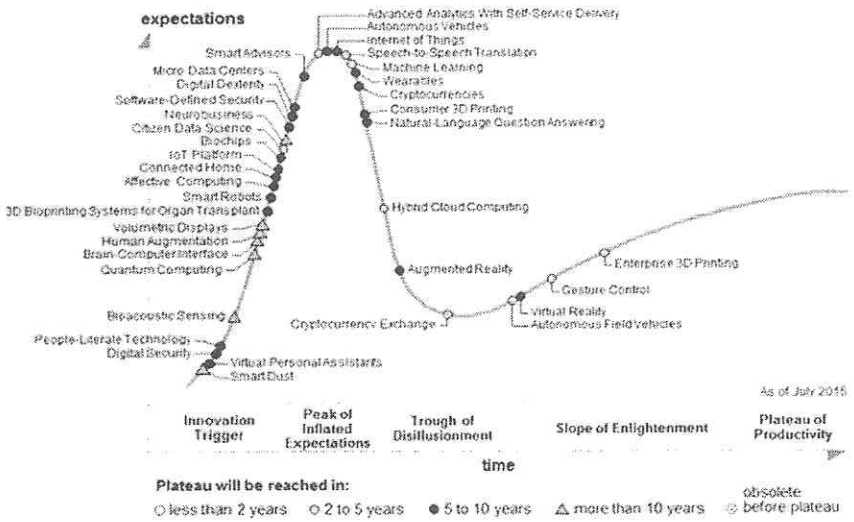
45. Complete the following diagram;



1 and 2 are:

A. Technology Forecasting and Technology Transfer
B. Technology Development and Innovation
C. Technology Acquisition and Technology Transfer
D. Technology Development and Dominant Design

46. Referring to the figure below, your CEO has decided to invest in quantum computing, he can be classified as



A. Innovator
B. Laggard
C. Early Adopter
D. Late Majority

Continued...

47. Distribution of innovators, early adopters, early majority, late majority and laggards in a population can be represented graphically by
    A. S Curve
    B. Bell Curve
    C. Bathtub Curve
    D. Linear Graph

48. Your strategic alliance project had 42 stakeholders initially. Recently you have added 5 team members to the project. How many more communication channels do you have now compared with before?
    A. 171
    B. 220
    C. 5
    D. 47

49. Many App developers choose to use the Android technology in order to maximize the number of people their App are accessible to, and the range of devices that can support their App. This illustrates which effect?
    A. Dominant Design
    B. Incumbent Technology
    C. S Curve
    D. Network Externalities

50. Voluntary; social and economic alignment; philanthropy are core characteristics of _____.
    A. Social innovation
    B. Fairtrade
    C. Corporate Social Responsibility
    D. Sustainable development

SECTION B: STRUCTURED QUESTIONS (50 Marks)

There are TWO (2) questions in this section. Candidates MUST answer ALL questions.

Question 1

a) You are a product manager of a technology company. Your company was established 3 years ago and now is enjoying excellent performance with the past couple of quarter earnings indicating an increasing trend. However, you would like to request budget allocation from the top management for a new product development project. What could be your justifications for this proposal and how would you defend it?

(10 Marks)

Continued...

b) The earlier proposal for a new product development is rejected by the top management. What alternative that is available to you to ensure that you can sustain your organization's performance based on the existing product? (5 Marks)

c) Most firms face serious constraints in capital and other resources. Management often had to choose among numerous valuable project proposals. Some use quantitative methods for assessing whether the anticipated future benefits are large enough to justify expenditure, given the risks by taking into account payback period, risk, and time value of money. How would you decide qualitatively? (10 Marks)

Question 2

a) You have successfully secured an R&D contract from a large client from another state. This is a major achievement for you and has the potential for subsequent contracts if the project is a success. The top management is taking special interest in the progress of this project. You are now approaching the last few milestones. The main will be the transfer of the technology from your site to the client's. Identify any ten (10) key factors that will facilitate the transfer process. (10 Marks)

b) There are numerous examples of social innovation around the globe. We've discussed examples of social innovations such as Krembo Wings, Café au Play, Resto VanHarte, GiveIndia.com, etc. Many suggest that when looking at such examples, it can be deduced that level of technological innovation is low in social innovations. Do you agree with such proposition? Please discuss. (5 Marks)

c) There are numerous examples of dominant designs – the light bulb, washing machine, television, telephone, etc. How can we explain why these technological designs are able to maintain their dominancy? (5 Marks)

d) Management often need to address following questions; What are the technologies used by our competitors? What are the innovations likely to have application in the business we operate in? What technologies used in other businesses could be transferred to our businesses? These questions can be answered by conducting "Technological Scanning" - broad scanning of potential sources of knowledge, many of which are far removed from the firm's immediate businesses. Identify the major sources of information often used for this (technological scanning).

(5 Marks)

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